IDAHO

IMPLEMENTATION PLAN

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Submitted to:

State of Idaho
Information Technology Resource Management Council
Department of Administration
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DIRK KEMPTHORNE
GOVERNOR

September 3, 2003

Dear Idahoans and GIS Community Partners:

I am very pleased to introduce Idaho's geospatial data implementation plan, (I-Plan), which will provide direction for the effective use of geospatial technologies to improve the quality of life throughout Idaho's communities.

The compilation of the (I-Plan), a working document in progress over the past year, is a remarkable collaborative effort by geographic information systems (GIS) professionals across many different levels of Idaho government – federal, state, tribal, county, city, and higher education; including the private sector.

With current economic realities, Idaho policy makers are faced with difficult choices. They must spread State financial resources across ever widening needs, including those for improving education, energy reliability, jobs and the economy, housing affordability, public safety, transportation, and the environment.

Idaho's I-Plan is the guide for developing and maintaining the framework of geospatial data layers as outlined in the Federal Geographic Data Committee's (FGDC) National Spatial Data Infrastructure (NSDI). Approximately 80 percent of all data used in government and business has a locational component. Much of this data has been developed without the vision of: *"Create Once - Use Many Times."* This plan will establish that gainful vision and implementation in Idaho.

I commend this excellent planning effort and join the GIS professionals who are excited about the benefits this inimitable technology will afford all Idahoans.

Sincerely,

DIRK KEMPTHORNE
Governor

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1. INTRODUCTION

This Idaho Implementation Plan (I-Plan) sets forth a strategy to coordinate and manage the collection, maintenance, and distribution of geospatial data themes critical to building an enterprise geographic information system (GIS) in Idaho, referred to as "framework data." Framework data forms an essential core to the Idaho Geospatial Data Infrastructure (IGDI). Although most framework datasets are incomplete, lack currency, and include mixed scales and undocumented data, significant benefits are accruing to the organizations having access to them. When fully realized, the framework data will contribute a vast array of foreseen and unforeseen benefits to public agencies and the private sector, enhancing economic development, homeland security, emergency response, urban and regional planning, and other areas critical to a thriving and well-informed community. This I-Plan endeavors to promote the greatest efficiency using the least resources to meet Idaho's needs.

Framework data themes are those that are required by a majority of users supporting decision-making in their respective organizations, those that form a critical foundation for many applications, or those that support the development of other essential data layers. The framework themes identified for Idaho are:

Geodetic Control
Cadastral
Transportation
Hydrography
Watersheds
Orthoimagery
Land Use/Land Cover
Elevation
Governmental Units

Some framework themes have enjoyed coordinated efforts for several years. In 2000, technical working groups (TWGs) were formed for each framework theme. Subsequently all TWG efforts were brought together under the I-Plan umbrella, and each TWG developed an I-Plan for its theme. The thematic I-Plans are attached as appendices.

2. BACKGROUND

There are seven major framework themes identified by U.S. Geological Survey (USGS), commonly referred to as the National Spatial Data Infrastructure (NSDI). The Federal Office of Budget and Management (OMB), along with the Federal Geographic Data Committee (FGDC), have requested that states or other coordinating entities develop implementation plans that address coordination of all aspects of framework data, including the national framework and other data themes critical to their specific areas. Executive Order 2001-07 signed by Governor Kempthorne established the Idaho Geospatial Committee (IGC) and made it a standing committee to the Information Technology Resource Management Council (ITRMC). The Executive Order directed the

IGC to promote interaction and cooperation among geospatial data users across the state and at all levels of government. The IGC recognized the TWGs as subcommittees and is providing oversight for Idaho's I-Plan.

3. VISION STATEMENT

This I-Plan promotes a cooperative strategy to create, maintain, and distribute Idaho geospatial framework data to support public services, private business, and the National Spatial Data Infrastructure. By promoting a positive political process that encourages Stakeholders to generously contribute to the I-Plan, our communities will be better and more efficiently served by all levels of government.

4. DRIVING ISSUES

4.1 Driving Issues for the Public

Development of an integrated framework dataset is critical to effectively address seven major public issues:

1. Economic development, including location and market analysis
2. Revenue and taxation
3. Facilities management
4. Public safety and health, including homeland security
5. Efficient use of resources, including personnel and capital investment
6. Future expenditure savings
7. Improved decision-making.

Each of these issues requires the use of multiple framework data layers, yet no organized, methodical effort has been made for collecting and maintaining this information. Most of Idaho's geospatial data has a variety of scales, levels of accuracy, geographic areas, and are described by diverse attribute databases. Most data are developed based on specifically defined agency project information requirements, and because these requirements are so varied, the resulting datasets are also extremely varied. Most of these datasets lack the necessary scope that includes all the thematic features over all areas of Idaho at desired scales.

4.2 GIS Community Objectives

Seven major GIS community objectives are critical to serving the public issues identified above. These objectives were identified by GIS representatives from all Stakeholder groups in Idaho.

1. Establish a cooperative process for creating and maintaining IGDI
2. Establish initial and stable, long-term funding
3. Promote integrated, easily accessible data sharing
4. Provide reliable, consistently formatted data

5. Conserve resources by eliminating duplicative efforts
6. Solicit universal participation by all Stakeholder groups
7. Foster a community of communication and trust.

Implied in these objectives is the development of standard methods and processes for data collection, sharing, storage, and maintenance. These are essential to preserve and further leverage investment in Idaho's geospatial data. Without putting these standards and processes in place, Idaho cannot effectively deal with the driving public issues.

5. OVERVIEW AND INTEGRATION OF THEMATIC I-PLANS

5.1 Definitions

Throughout this I-Plan and its appendices, the following words have specific meanings.

Stakeholders. That group of organizations and individuals having an interest in the implementation plan and/or the resulting datasets.

Authors. Authors are Stakeholders that create and maintain features and, frequently, feature attributes in geospatial datasets. Authors are predominately governmental entities, and the data are collected and maintained for specific business purposes.

Stewards. Stewards are responsible to all Stakeholders for creating and maintaining a specific geospatial dataset according to adopted standards. Maintenance includes incorporating update information provided by reliable sources. Stewards are a subset of Authors.

Integrators. Integrators are Stakeholders responsible for integrating each Steward's geospatial dataset for a single theme into one seamless data layer for distribution. At least one Integrator is identified for each geospatial theme.

Enhancers. There are two varieties of Enhancers. Attribute Enhancers are Stakeholders that add additional attributes to existing geospatial data. Feature Enhancers are Stakeholders that modify existing geospatial datasets with additional or corrected features and augmented attributes. Feature enhancers are often private entities that resell geospatial data.

Consumers. Consumers are the broadest class of Stakeholders. Consumers use existing geospatial data "as is." Consumers are every type of entity.

Associates. Associates are Stakeholders that are responsible for setting geospatial data standards, gathering national datasets, promoting data sharing, or providing funding for accomplishing national or regional goals for geospatial datasets. Associates may also belong to other Stakeholder groups.

5.2 Funding

Funding is critical to achieving nearly all of the objectives proposed in this I-Plan. Two types are required: initial funding and continuing maintenance funding. Initial, usually one-time, funding underwrites such activities as data capture and development, pilot projects, education and training, data conversion, and completion of statewide datasets. The federal government has traditionally been the primary source of this type of funding. Maintenance funding is critical to preserving initial efforts; it is needed to keep data current and to develop enhancements. This type of funding usually requires fewer dollars than initial funding. Those dollars can often be found in existing budgets that are currently funding less efficient methods of meeting business purposes that can be replaced by geospatial methods. To address the funding issues, a plan reflecting a multi-tiered, multi-year approach is in early stages of development.

5.3 Registration

Geodetic Control. The ability to locate features on the ground is the unique contribution of geospatial data. Therefore, using the most accurate geodetic control is the cornerstone to a locationally accurate geospatial dataset. Different scales require different sources of control. For locations accurate enough for legal land descriptions, services of a licensed land surveyor using rigorous ground control are required. For statewide (intermediate and small) scales, less rigorous methods of determining location can be appropriately applied. The Continuously Operating Reference Station (CORS) network, Geodetic Control Data Base (GCDB), and Public Land Survey System (PLSS) provide the geodetic control required in Idaho. The geodetic control used for a particular dataset is documented in the metadata.

Geospatial Reference. One of most critical aspect of using the framework data together is accurate geospatial registration. Each thematic layer must be accurate enough at a consistent scale to position its features in correct relationship to features contained in the other layers. Idaho's approach will be to use current orthoimagery based on good geodetic control as a geospatial reference base. When all framework themes are registered to orthoimagery, a comprehensive framework dataset will emerge without further integrative effort. Different scales will support different applications and serve a wide variety of business purposes.

5.4 Interdependencies

Many of the thematic datasets have multiple dependencies on one or more framework layers. Each thematic I-Plan identifies specific interdependencies. It is important to emphasize that in addition to the specific interdependencies, more than one thematic layer is required to support most business purposes. For instance, parcels and transportation are needed to support 911 services, while wildfire management support requires orthoimagery, elevation, parcels, and transportation. Due to the multiplicity of business purposes that will be supported, working steadily on all thematic datasets is

essential to achieving maximum benefit from current and future investment in the framework.

6. ACTION PLAN

6.1 Short-term Priorities

A critical short-term priority is to develop and adopt standards and best practices for GIS and feature capture to provide guidance for Authors, Stewards, and Enhancers. Initial efforts have resulted in some draft standards that are currently navigating the approval process. However, not all aspects have been addressed, and more development is required. Since data gathering and conversion projects are initiated every month, a complete set of approved standards and best practices is urgently needed to attain the best possible outcome and data of a quality that can be added to the IGDI.

Geodetic Control and the Spatial Reference element of the Cadastral I-Plan (Appendices A and B) are critical to the foundation of other framework datasets. Preliminary efforts to fund and implement the CORS network are underway; however, additional focus will be required to see it through.

Efforts are also underway to complete the remaining 416 digital orthophoto quarter quads for $177,000. Completion of this statewide orthoimagery dataset will provide appropriate geospatial reference for many of the other thematic datasets.

Other short-term priorities are conducting inventories and related activities recommended in the thematic I-Plans. (See Appendices A-I.) These inventories will provide a good foundation for estimating resources, costs, and time required to complete those datasets.

The respective TWGs will coordinate and track short-term priorities. As soon as possible, the Framework Team (paragraph 6.3) will perform these responsibilities.

6.2 Long-term Priorities

Transportation, Governmental Units, and the Parcels element of the Cadastral I-Plan all have large numbers of Stakeholders with diverse abilities and business purposes. Parcels and Transportation are especially critical in the homeland security context. Recommendations in the respective thematic I-Plans need special focus for the sustained effort needed to realize each vision.

Hydrography and Watersheds framework datasets enjoy a history of successful collaborative effort and are continuing to realize their respective visions. Federal grant funding has been and will continue to be an important component for completing the work. These efforts should be supported until complete.

The Land Use/Land Cover dataset relies primarily on ongoing federal programs and leveraging local efforts for high-resolution data in order to realize its vision. This passive

approach will generate a good land use/land cover dataset. Encouraging Authors and Stewards to use the standard classification schema for high-resolution data and reaching consensus on currency, scale, and additional detail useful for a wide variety of applications and business purposes needs special focus.

6.3 Framework Team

To sustain this effort, increase the successful outcome of framework activities, and leverage the investment for the benefit of all, we recommend creating a Framework Team. The Framework Team has five components:

1. Overall coordination will be provided by the USGS Idaho liaison and Idaho's State GIS Coordinator.

2. Education and training will be provided by Idaho's colleges and universities. Stakeholders in each geographic area of Idaho will be encouraged to contact the college or university in their region for training opportunities specific to the framework datasets. Workshops for specific themes, as well as common content such as metadata, will be offered periodically. Content will be developed with Framework Team guidance to achieve consistency regardless of training location. Funding for these activities will be solicited through grants and other cost recovery methods.

3. Technical assistance for Authors and Stewards will be provided by the Integrator for each thematic dataset. Funding for Integrators will be solicited from a variety of sources, including the State and U.S. Legislatures, federal agencies such as the USGS, U.S. Bureau of Land Management (BLM), the U.S. Forest Service (USFS), and the U.S. Census Bureau (Census), agencies within the U.S. Department of Homeland Security, and others. Integrators have been identified as follows:

Geodetic Control	Idaho Transportation Department
Cadastral:	
Spatial Reference	Idaho Transportation Department
PLSS	U.S. Bureau of Land Management
Parcels	Not identified
Transportation	Idaho Transportation Department
Hydrography	U.S. Geological Survey
Watersheds	Idaho Department of Water Resources
Land Use/Land Cover	U.S. Geological Survey
Elevation	U.S. Geological Survey
Governmental Units	Idaho State Tax Commission

4. Coordination of fund-seeking efforts will be provided by a Framework Finance Coordinator (FFC). This position is needed to capitalize on grant and other funding opportunities without burdening each agency with the overhead

required to write grants, distribute funds, track emerging opportunities and ongoing activities, and report on funded efforts. Ideally these duties would be carried out by a finance or grants and contracts officer familiar with GIS concepts. For the first year, the work could be performed on a part-time basis and include the development of a funding plan. Part or all of the cost of such a position could be supported by a portion of the funding captured by the FFC. The FFC will report to the IGC and the State GIS Coordinator.

5. Data distribution activities will be performed by INSIDE Idaho, the official state geospatial data clearinghouse. To ensure the continued viability of Idaho's GIS clearinghouse, any grants or other funding requests are strongly encouraged to include a data distribution component specifically providing for funding for INSIDE Idaho to perform data distribution. The ultimate goal is a financially stable clearinghouse that relies on funding from a variety of sources, including the State Legislature. In rendering distribution services, INSIDE Idaho will also continue to provide support for and distribution of FGDC-compliant metadata for each of the framework datasets.

6.4 Fostering a GIS Community

Good communication and mutual trust are essential to fostering a thriving GIS community that effectively and efficiently addresses driving issues. These qualities will enable us to sustain long-term efforts required for many of our framework datasets. Some existing activities and tools promote good communication: the state GIS list server, the annual Idaho Geospatial Users Meeting (IGUM), IGC and related subcommittee meetings, and numerous informal meetings. To further foster good communication, we recommend holding annual or semi-annual meetings with TWG chairs, IGC representatives, the Idaho State GIS Coordinator, the USGS Idaho liaison, the Framework Team, and other interested Stakeholders. In addition, we recommend that Authors initiating new projects relating to framework data routinely inform Stakeholders of the planned activities and programs by posting a summary description on the state GIS list server.

The goal of mutual trust is more difficult to achieve. Many agency activities and funding decisions are made without any input from GIS personnel. A concerted effort within each agency, perhaps with the weight of the ITRMC for state agencies, would target agency heads and other key decision makers so that changes in funding and agency activities do not adversely affect ongoing I-Plan efforts and, even better, enhance ongoing efforts whenever possible. Just as important, interagency competition and turf wars must be discouraged whenever they occur, calling on ITRMC authority when appropriate. Resources are too scarce for duplication of effort and for data silos to arise or persist.

7. ESTIMATED COSTS

A preliminary estimated cost to complete the basic framework datasets is approximately $7 million. This estimate does not include maintaining, enhancing, or distributing the data.

Geodetic Control	$ 770,000	+
Cadastral	4,040,000	+ state parcels
Transportation	1,350,000	
Hydrography	265,554	+ undetermined amounts
Watersheds	45,000	
Orthoimagery	177,000	
Governmental Units (24k)	30,000	

Annual funding is necessary to carry out the responsibilities of the Framework Team. These include funding for INSIDE Idaho, training, financial coordination, and technical assistance. No estimate of these costs has been calculated.

8. SCHEDULE

An overall schedule for completing the IGDI has not yet been determined. Please refer to the thematic I-Plans in the appendices for completion schedules. Not all themes have set a schedule for completion.

9. CONTACTS

The names and contact information of the people associated with this I-Plan can be found at: http://www2.state.id.us/itrmc/committees.htm#IGC.